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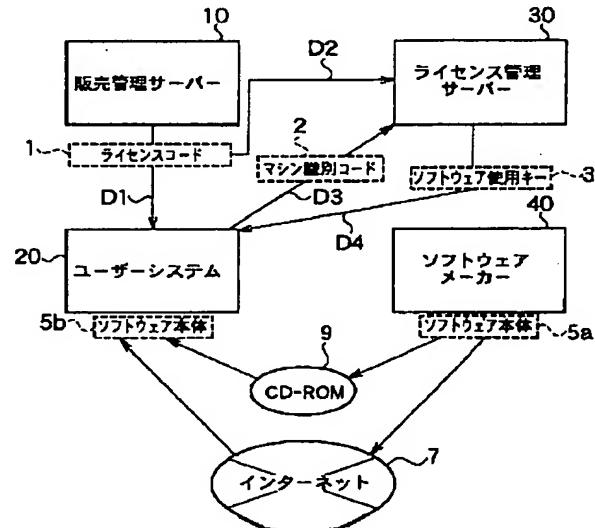
(54) 【発明の名称】 ソフトウェア管理方法、ソフトウェア管理装置およびソフトウェア管理システム

(57) 【要約】

【課題】 ユーザーの簡易な操作でソフトウェアの不正使用の防止を実現する。

【解決手段】 少なくとも、ソフトウェアの使用許諾に応じて付与される第1のキー(1)と、該ソフトウェアの稼働する各コンピュータマシン固有の識別コード

(2) とに基づいて、ソフトウェアのコンピュータマシン上での使用を識別する第2のキー(3)を生成するステップと、ソフトウェアの使用の際に、第2のキー(3)のみに基づいて前記ソフトウェアの使用の可否を判定するステップとを含む。ライセンス登録時に付与されたライセンスコード1と各ソフトウェアのライセンスの範囲内の使用であるか否かを判断するソフトウェア使用キー3とが独立して管理・運用される。



## 【特許請求の範囲】

【請求項1】 ネットワークを介してソフトウェアの使用の管理を行うソフトウェア管理方法であって、少なくとも、ソフトウェアの使用許諾に対応して付与される第1のキーと、該ソフトウェアの稼働する各コンピュータマシン固有の識別コードとに基づいて、前記ソフトウェアの前記コンピュータマシン上での固有の使用を識別する第2のキーを生成するステップと、

前記ソフトウェアの使用の際に、前記第2のキーのみに基づいて前記ソフトウェアの使用の可否を判定するステップとを含むことを特徴とするソフトウェア管理方法。

【請求項2】 ネットワークを介してソフトウェアの使用の管理を行うソフトウェア管理方法であって、ソフトウェアの使用許諾に対応する第1のキーを付与するステップと、

前記第1のキーが存在する場合に、前記ソフトウェアの稼働する各コンピュータマシン上での前記ソフトウェアの固有の使用を識別する第2のキーを生成するステップと、

前記ソフトウェアの使用の際に、前記第2のキーのみに基づいて前記ソフトウェアの使用の可否を判定するステップとを含むことを特徴とするソフトウェア管理方法。

【請求項3】 前記第2のキーの生成ステップは、前記ソフトウェアが最初に使用される場合に、前記識別コードのみに基づき前記第2のキーを生成することを特徴とする請求項1に記載のソフトウェア管理方法。

【請求項4】 ソフトウェアの使用許諾に対応して付与される第1のキーの受信の有無を判断する第1の手段と、

前記第1の手段により前記第1のキーの受信が判断された場合にのみ、前記ソフトウェアの稼働する各コンピュータマシン固有の識別コードに基づいて、前記ソフトウェアの前記コンピュータマシン上での固有の使用を識別する第2のキーを生成する第2の手段とを具備することを特徴とするソフトウェア管理装置。

【請求項5】 ネットワークを介してソフトウェアの使用許諾を行うライセンス発行サーバーと、該ソフトウェアの使用の管理を行う使用管理サーバーと、該ソフトウェアを稼働するユーザーシステムとを具備するソフトウェア管理システムであって、

前記ライセンス発行サーバーは、ソフトウェアの使用許諾に対応する第1のキーを付与する第1キー生成部を具備し、

前記使用管理サーバーは、少なくとも、前記第1のキーと、該ソフトウェアの稼働する各コンピュータマシン固有の識別コードとに基づいて、前記ソフトウェアの前記コンピュータマシン上での固有の使用を識別する第2のキーを生成する第2キー生成部を具備し、

前記ユーザーシステムは、前記ソフトウェアの使用の際に、前記第2のキーのみに基づいて前記ソフトウェアの

使用の可否を判定する使用判定部を具備することを特徴とするソフトウェア管理システム。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】 本発明は、ソフトウェア管理方法、ソフトウェア管理装置およびソフトウェア管理システムに関し、特に、ソフトウェアを取引対象とするネットワーク上の電子商取引において、ユーザーの簡易な操作によりソフトウェアの不正使用を防止して、ソフトウェアの柔軟かつ効率的なライセンス管理を実現するための技術に関する。

## 【0002】

【従来の技術】 インターネットなどのネットワークを介して電子商取引によりソフトウェアを販売・管理する一般的手順を説明する。

【0003】 ユーザーはネットワークを介して所望するソフトウェアをダウンロードすることで当該ソフトウェアの無料配布を受ける。対価の入金の後、当該ソフトウェアの使用を許諾するための、ライセンス付与を示すコード（以下、ライセンスコードと称する）が、販売店等からユーザーに対して通知される。ユーザーが当該ソフトウェアを使用する際に、入力されたライセンスコードがチェックされ、当該使用がライセンスに基づく正当な使用であるか否かが判定される。

【0004】 一方、ソフトウェアは、極めて容易に複製可能であることを特性とする。このため現実には、ライセンスを得た1本のソフトウェアが不正にコピーされた上、複数のコンピュータマシンで無断で不正使用される場合が多い。

【0005】 このソフトウェアの不正コピーを防止するため、1本ごとのソフトウェアのどのコンピュータマシン上での使用が許諾されているかを管理することが求められる。即ち、1本のソフトウェアへのライセンスに対する複数の使用を防止するためには、マシン固有の識別コード等により各ソフトウェアの各コンピュータマシンごとにおける使用がそれぞれ管理されなければならぬ。

【0006】 従来の不正使用チェックの手法として、第1にライセンスコードを用いる方式があった。この第1の方式では、ソフトウェアの使用時にライセンスコードをユーザーに入力させる。このライセンスコードをキーとして使用チェックする。

【0007】 しかし、この第1の手法では他のユーザーは、単一のライセンスコードを知りさえすれば、1本のソフトウェアへのライセンスしかない場合でも複数のコンピュータマシンで当該ソフトウェアを重複して容易に使用し得る。従って、不正使用を十分防止することができなかつた。加えて、キーを高度に複雑化すれば、ユーザーの操作が煩雑となる。

【0008】 また第2の手法として、コンピュータマシ

ン固有の識別コードを用いる方式があった。この第2の方式では、ユーザーがソフトウェアをダウンロードした際等にこのソフトウェア中にダウンロードされたマシンの識別コードが埋め込まれる。ソフトウェア使用の際に、ソフトウェア中の識別コードと当該ソフトウェアが稼働しているマシンの識別コードとを自動的にチェックする。従って、ユーザーが使用の際にキーを入力することなく、許可されたマシン以外での不正使用を防止することができる。

【0009】しかし、この第2の手法では、ダウンロード時にあるライセンスとダウンロード先のコンピュータマシンの識別コードが固定的に結びつけられてしまう。このため、ソフトウェアのバージョンアップや修正などを同一ライセンス内の変更として処理することができない。また、ライセンス登録前にダウンロードしたソフトウェアの動作確認を行うこともできない。これらの場合にも、新規購入時と同様のライセンスの登録手順の再実行が必要となってユーザーに煩雑な操作を強い。一方、ライセンス管理者側も、同一のマシンでの同一のソフトウェアの情報を、重複して管理する必要があり、ライセンス管理が煩雑であった。

#### 【0010】

【発明が解決しようとする課題】以上のように本発明は、従来技術における、販売キーあるいはマシン識別コードという単一のキーによる使用チェックであるために、ソフトウェアの不正使用が容易であった、あるいは、ユーザー側の操作及びライセンス管理者側の運用が煩雑であったという問題点を解決するためになされたものである。

【0011】そして、その目的とするところは、ユーザーの簡易な操作によりソフトウェアの不正使用を防止することを可能とするソフトウェア管理方法、ソフトウェア管理装置およびソフトウェア管理システムを提供することにある。

【0012】また、他の目的は、電子商取引上の多様な販売形態に対応可能な汎用的なソフトウェアのライセンス管理を実現することにある。

#### 【0013】

【課題を解決するための手段】上記の課題を実現するための本発明の特徴は、ソフトウェア使用許諾時に付与するライセンスコードと、当該ソフトウェア使用の際の使用チェックのキーとを相互に独立させる点にある。即ち、ライセンス発行時のキーとライセンスチェック時のキーを分けた点にある。

【0014】ソフトウェア使用のチェックに用いるキー(以下、ソフトウェア使用キーと称する)は、各ソフト毎、かつ各マシン毎に固有のキーが付与される。

【0015】かかる機能を実現するために、請求項1の発明は、ネットワークを介してソフトウェアの使用の管理を行うソフトウェア管理方法であって、少なくとも、

ソフトウェアの使用許諾に対応して付与される第1のキーと、該ソフトウェアの稼働する各コンピュータマシン固有の識別コードに基づいて、前記ソフトウェアの前記コンピュータマシン上での固有の使用を識別する第2のキーを生成するステップと、前記ソフトウェアの使用の際に、前記第2のキーのみに基づいて前記ソフトウェアの使用の可否を判定するステップとを含むことを特徴とする。

【0016】上記構成によれば、使用許諾時に付与された第1のキーと独立して各コンピュータマシン単位にライセンスされた使用であるか否かをチェックすることが可能となる。従って、ユーザーの簡易な操作でソフトウェアの不正使用を十分に防止することが可能となる。

【0017】また、請求項2の発明は、ネットワークを介してソフトウェアの使用の管理を行うソフトウェア管理方法であって、ソフトウェアの使用許諾に対応する第1のキーを付与するステップと、前記第1のキーが存在する場合に、前記ソフトウェアの稼働する各コンピュータマシン上での前記ソフトウェアの固有の使用を識別する第2のキーを生成するステップと、前記ソフトウェアの使用の際に、前記第2のキーのみに基づいて前記ソフトウェアの使用の可否を判定するステップとを含むことを特徴とする。

【0018】上記構成によれば、使用許諾時に付与された第1のキーと独立して各コンピュータマシン単位にライセンスされた使用であるか否かをチェックすることが可能となる。従って、ユーザーの簡易な操作でソフトウェアの不正使用を十分に防止することが可能となる。

【0019】また、請求項3の発明は、前記第2のキーの生成ステップは、前記ソフトウェアが最初に使用される場合に、前記識別コードのみに基づき前記第2のキーを生成することにより、ソフトウェア購入前の当該ソフトウェアの動作確認を実行させ、この動作確認を管理することができる。

【0020】また、請求項4の発明は、ソフトウェアの使用許諾に対応して付与される第1のキーの受信の有無を判断する第1の手段と、前記第1の手段により前記第1のキーの受信が判断された場合にのみ、前記ソフトウェアの稼働する各コンピュータマシン固有の識別コードに基づいて、前記ソフトウェアの前記コンピュータマシン上での固有の使用を識別する第2のキーを生成する第2の手段とを具備することを特徴とする。

【0021】上記構成によれば、使用許諾時に付与された第1のキーと独立して各コンピュータマシン単位にライセンスされた使用であるか否かをチェックすることが可能となる。従って、ユーザーの簡易な操作でソフトウェアの不正使用を十分に防止することが可能となる。

【0022】更に、請求項5の発明は、ネットワークを介してソフトウェアの使用許諾を行なうライセンス発行サーバーと、該ソフトウェアの使用の管理を行う使用管理

サーバーと、該ソフトウエアを稼働するユーザーシステムとを具備するソフトウエア管理システムであって、前記ライセンス発行サーバーは、ソフトウエアの使用許諾に対応する第1のキーを付与する第1キー生成部を具備し、前記使用管理サーバーは、少なくとも、前記第1のキーと、該ソフトウエアの稼働する各コンピュータマシン固有の識別コードとに基づいて、前記ソフトウエアの前記コンピュータマシン上での固有の使用を識別する第2のキーを生成する第2キー生成部を具備し、前記ユーザーシステムは、前記ソフトウエアの使用の際に、前記第2のキーのみに基づいて前記ソフトウエアの使用の可否を判定する使用判定部を具備することを特徴とする。

【0023】上記構成によれば、各ソフトウエアの販売管理者とライセンスの管理者を独立して設けることが可能となる。

【0024】

【発明の実施の形態】以下、図面を用いて本発明の実施形態を詳細に説明する。

【0025】図1は、本実施形態に係るソフトウエア管理装置およびシステムのシステム構成を説明する図である。図1に示すように、本実施形態に係るソフトウエア管理システムは、販売管理サーバー10と、ユーザーシステム20と、ライセンス管理サーバー30とにより構成される。販売管理サーバー10、ユーザーシステム20、ライセンス管理サーバー30は、インターネット等のネットワーク(図示せず)を介して相互にネットワーク接続される。

【0026】販売管理サーバー10は、ソフトウエアメーカー40などの委託に基づき、ソフトウエアを販売する販売店により管理される。販売管理サーバー10は、販売したソフトウエアの対価としてのユーザーからの入金を確認後、ユーザーシステム20に対してライセンスコード1を発行する。

【0027】ユーザーシステム20は、インターネット上のショップ等により選択した所望するソフトウエア本体5aを、ソフトウエアメーカー40から取得する。このソフトウエア5aは、インターネット7を介してユーザーシステム20にダウンロードされてもよく、あるいはCD-ROM9などの形態でオフラインで配布されてもよい。

【0028】ライセンス管理サーバー30は、販売店あるいは外部委託業者等により管理される。ライセンス管理サーバー30は、販売された各ソフトウエアがいずれのユーザーのいずれのコンピュータマシンに導入され、使用されているかの管理を行う。具体的には、ライセンス管理サーバー30は、対象ソフトウエアのライセンスコード1が発行されている場合に、ユーザーシステム20に対してソフトウエア使用キー3を発行する。

【0029】次に、本実施形態が用いる各コードおよびキーの体系を説明する。

【0030】ライセンスコード1は、販売されたソフトウエアの使用許諾を識別するコードである。ライセンスコード1は、ソフトウエアの販売後ライセンス登録時に付与され、ソフトウエア購入ユーザーに通知される。このライセンスコード1は、例えばソフトウエア名、販売番号、ライセンスID、パスワードなどを含んで構成される。ライセンスコード1は請求項での記載中第1のキーと対応する。

【0031】マシン識別コード2は、ライセンス登録後、当該ソフトウエアが稼働すべきコンピュータマシンを固有に識別するコードである。ライセンス管理サーバー30は、このマシン識別コード2をソフトウエアのライセンス管理の単位とする。マシン識別コード2は、例えばソフトウエアが稼働するコンピュータマシンのOS(Operation System)名、OS番号、ソフトウエアが導入されたハードディスク番号などを含んで構成される。

【0032】ソフトウエア使用キー3は、各ユーザーシステム20でのソフトウエアの使用が発行されたライセンスに基づく正当使用であるか否かを識別するキーである。このソフトウエア使用キー3は、各ソフトウエアを使用する際に必要となる各コンピュータマシンごとに固有のキーが付与される。各ユーザーシステム20では、このソフトウエア使用キー3を用いて当該ソフトウエアの使用が使用許諾された範囲(例えば、許可された1つのコンピュータマシン上での使用か)の使用であるか否かを判定する。ソフトウエア使用キー3は、例えばマシンの識別情報、ソフトウエア識別情報、日付時間情報などを含んで構成される。マシンの識別情報はマシン識別コード2から任意の変換処理を介して生成されてもよい。同様に、ソフトウエア識別情報はライセンスコード1から任意の変換処理を介して生成されてもよい。構成要素として上記の他、例えば使用許諾が期限付きである場合には使用許諾期間情報を含んで構成されてもよい。さらに、使用モードを含んで構成されてもよい。使用判定の際にこの使用モードを用いて、当該使用が動作確認モード、レンタル使用モード、期限付きライセンス使用モード、無期限ライセンスマードなどのうちいずれのモードであるかをそれぞれ判別することができる。ソフトウエア使用キー3は、請求項での記載中第2のキーと対応する。

【0033】このソフトウエア使用キー3は、使用チェックの際には単独で使用禁止の解除キーとして用いられる。即ち、ライセンスコード1とは相互に独立である。このため1つのライセンスコード1に対して複数のソフトウエア使用キー3を発行してもよい。これにより、1つのライセンス中で複数のコンピュータマシンでの使用を認める場合に対応できる。また、ソフトウエア使用キー3は、ユーザーが意識することなく、対象ソフトウエア中などに埋め込まれて使用チェックに用いられる。従って不正使用防止のため任意に暗号化・複雑化が施され

てよい。

【0034】尚、ライセンスコード1、マシン識別コード2、ソフトウェア使用キー3の上記以外の体系および生成方法などは任意であり、一般に知られる手法により生成されてよい。

【0035】次に、図2から図4を参照して本実施形態に係るソフトウェア管理方法、ソフトウェア管理装置およびソフトウェア管理システムの処理手順を説明する。

(1) ソフトウェア新規購入時

所望するソフトウェアを新規購入する際の手順を、図2を参照して以下に説明する。

【0036】まず、ユーザーは所望するソフトウェアをダウンロードなどにより取得する(S10)。

【0037】次に、ダウンロードされたソフトウェアの購入の是非の判断のため、ユーザーは当該ソフトウェアの動作確認を行う(S20)。この動作確認は、例えば、当該ソフトウェアの初回起動の際などに動作確認登録画面を経て処理可能となる。

【0038】動作確認時には、仮のソフトウェア使用キーを用いて使用チェックが行われる。図3に、動作確認時の仮のソフトウェア使用キー発行手順を示す。ライセンス管理サーバー30は、ユーザーシステム20から動作確認用のソフトウェア使用の要求を、当該要求を送信するコンピュータマシンのマシン識別コード2と共に受信する。ライセンス管理サーバー30はこのマシン識別コード2に基づき仮のソフトウェア使用キー3aをユーザーシステム20に対して発行する。発行された仮のソフトウェア使用キー3aにより、当該ソフトウェアの使用判定が行われる。このため、販売側は、購入の意志表示によりライセンス登録を行う前であっても所定のマシンでのみ当該ソフトウェアを稼働させることができる。また、上記の処理はライセンス管理サーバー30のみで実行されるので、販売側(販売管理サーバー10)は頻度の多い動作確認要求を処理する必要がない。一方、ユーザーは、所望するソフトウェアの内容を確認後必要に応じてソフトウェアを購入することができる。

【0039】尚、この仮のソフトウェア使用キー3aは、ライセンス管理サーバー30により、当該ソフトウェアがいつまで使用できるかを示す使用期限情報を含んで生成される。このため、ユーザーシステム側ではソフトウェア使用キー3a中に埋め込まれた使用期限情報を検出することは困難であり、期限情報を不正に改変して当該ソフトウェアを無期限に使用されることが防止される。この期限情報の改変を抑止することで、ソフトウェア使用のモードとして、前述のライセンス使用モードなどを設けることも可能となる。

【0040】次に、動作確認により購入意志を固めたユーザーがソフトウェア購入代金を入金すると、その後に当該ソフトウェアの購入ユーザー名・購入本数等の販売データに対応するライセンスコード1が付与され、販売

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サーバーなどからユーザーシステム20に通知される(図1中のD1)。販売管理サーバー10はこのライセンス登録情報を対応するライセンスコード1と共に販売データベース12に格納する。このライセンスコード1は同時にライセンス管理サーバー30が管理するライセンス管理データベース32にも格納される(図1中のD2)。

【0041】次に、ライセンスコード1を付与されたユーザーは、ライセンス管理サーバー30に対してライセンス登録を行う(S30)。具体的には、まずユーザーシステム20とライセンス管理サーバー30の間がオンライン接続される。この接続には、例えば、ダウンロードされたソフトウェアに付随する汎用モジュールなどに埋め込まれたライセンス管理サーバー30のネットワークアドレスが用いられてよい。ユーザーが対象ソフトウェアの初期画面等を介してライセンスコード1を入力する。このライセンスコード1の入力により、ライセンスコード1およびマシン識別コード2がライセンス管理サーバー30に対して送信される(図1中のD3)。このマシン識別コード2は例えば一般に知られる割り込み命令などを用いて当該ライセンス登録が起動されたコンピュータマシン固有の識別情報を読みとることにより取得することができる。

【0042】このライセンス登録の後、ライセンス管理サーバー30はソフトウェア使用キー3を生成する(S40)。尚、このソフトウェア使用キー生成の処理はライセンス登録後直ちに実行されてもよく、当該ソフトウェアの最初の使用の際に実行されてもよい。

【0043】図4を参照して、ライセンス登録後のソフトウェア使用キー生成手順を詳細に説明する。ライセンス管理サーバー30は、ユーザーシステム20からコンピュータマシンのマシン識別コード2を受信する(図1中のD3)。ライセンス管理サーバー30は、ライセンス管理データベース32中で、受信したマシン識別コード2および使用要求されたソフトウェアに対応するライセンスコード1を検索する。このライセンスコード1は予めライセンス管理データベース32に格納されていてもよく、ソフトウェア使用キー発行時に販売管理サーバー10から取得されてもよい。対応するライセンスコード1が存在した場合、ライセンス管理サーバー30はマシン識別コード2に基づき当該ソフトウェアについてのソフトウェア使用キー3bをユーザーシステム20に対して発行する(図1中のD4)。対応するライセンスコード1が存在しない場合、ライセンス管理サーバー30はソフトウェア使用キー3bを生成しない。発行されたソフトウェア使用キー3bは、ユーザーシステム20により受信され、ライセンス対象ソフトウェア中に格納あるいは当該ソフトウェアと関連づけて格納される。一方、ライセンス管理サーバー30は、各ユーザーシステム20におけるマシン識別コード2を管理すれば足り、

各ソフトウェア使用キー3bを意識する必要がない。このため、セキュリティ維持などの目的でユーザーシステム20側で必要に応じてソフトウェア使用キー3bが変更された場合もライセンス管理サーバー30側でのデータの更新は不要であり、ライセンス管理が容易となる。

【0044】次に、ユーザーがユーザーシステム20において、対象ソフトウェアが起動された際にソフトウェア使用チェック処理が行われる(S50)。使用チェック処理は、起動されたソフトウェアに対応して格納されたソフトウェア使用キー3のみに基づき行われる。この使用チェックの具体的手法としては、ソフトウェア使用キー3の体系に応じ、一般に知られる使用判定の手法が選択されてよい。

【0045】尚、この使用判定において、他のライセンスコード1との相関チェックは不要である。このため、販売管理サーバー10・ライセンス管理サーバー30にオンライン接続する必要がなく、ユーザーシステム20単独で必要十分な使用チェックを完了することができる。

【0046】また、この使用チェック処理はユーザーの入力を伴わない背景処理として行われる。このため、ユーザーは高度に複雑化されたソフトウェア使用キー3を意識する必要がない。また、ライセンスコード1を覚えておき使用の都度入力などする必要もない。従って、ユーザーの操作性が大幅に向上升す。

【0047】この使用チェックにより当該ソフトウェアの当該コンピュータマシン上での起動が有効とされた場合には、当該ソフトウェアが使用可能とされる(S60)。他方、この使用チェックの際に、ライセンス対象外のコンピュータマシンによる起動あるいはソフトウェア使用キー3の改変など、当該使用が無効と判定された場合には、不正使用として当該ソフトウェアの使用を不能とすることができます。

【0048】即ち、ソフトウェア使用キー3bは、マシン識別コード2から生成されるため、他のコンピュータマシン上で起動された場合には、容易にマシン識別コードの相違が検知され、他のコンピュータマシン上での使用を防止することができる。

## (2) ライセンス情報変更時

次に、対象ソフトウェアに関するライセンス登録が既になされている場合のライセンス情報変更時の処理手順を以下に説明する。

### (a) バージョンアップの場合

第1に対象ソフトウェアのバージョンアップの場合を説明する。ユーザーは新規購入の場合と同様、ソフトウェアメーカー40から保有ソフトウェアの新しいバージョンをダウンロードなどにより取得する。

【0049】次に、ライセンス情報変更処理が起動される。図1中ユーザーシステム20からのライセンス情報変更要求はライセンス管理サーバー30に送信される。

このライセンス情報変更要求は当該ソフトウェアのバージョンアップを示す情報を含む。ライセンス管理サーバー30はこのライセンス情報変更要求に基づきライセンス許可されたマシン識別コード2であれば、新たなバージョンに対応するソフトウェア使用キー3を生成する。この新たなソフトウェア使用キー3はユーザーシステム20に送信されると共にライセンス管理データベース32を更新する。

【0050】このように、本実施形態では、バージョンアップの場合もソフトウェア使用キー3を変更するのみでよい。ライセンスコード1とは無関係に同一ライセンスの下で新たな使用キーを付与することができる。このため、販売管理サーバー10は、同一ライセンスの各ユーザーシステムでのバージョンアップに関連する処理を行う必要がない。本実施形態では無料バージョンアップも容易に実現される。一方、ユーザーもバージョンアップの都度ライセンスの再登録処理を行う必要がなく、操作性が向上する。

### (b) 使用マシン変更の場合

第2に、ライセンスされているソフトウェアを稼働させるコンピュータマシンを変更する場合を説明する。

【0051】まず、ユーザーは、ライセンスされているコンピュータマシン上でライセンス取り消し処理を起動・実行する。

【0052】ユーザーシステム20は、ライセンス取り消し処理実行後にライセンス取り消し情報をライセンス管理サーバー30に送信する。ライセンス管理サーバー30は、このライセンス取り消し情報に従い使用マシン変更コード(図示せず)を生成してユーザーシステム20に送信する。ユーザーシステム20では、ユーザーが新たに当該ソフトウェアを使用すべきコンピュータマシン上でライセンス登録処理を実行する。このライセンス登録処理の際に付与された使用マシン変更コードを入力してソフトウェア使用キー3を更新する。これにより、同一ライセンスの下で、新たなコンピュータマシン上でソフトウェア使用キー3を取得することができる。

【0053】このため、ライセンス管理サーバー30は、同一ライセンスの下でのソフトウェアが使用される新旧のコンピュータマシンを対応付けて管理することができる。一方、ユーザーも、使用を終了するコンピュータマシンでライセンス取り消し処理を行って、付与された使用マシン変更コードをライセンス登録画面などで入力するのみの簡易な操作でソフトウェア使用キーの移動を行うことができる。

### 【0054】

【発明の効果】以上説明したように、本発明によれば、以下に記載されるような効果を奏する。

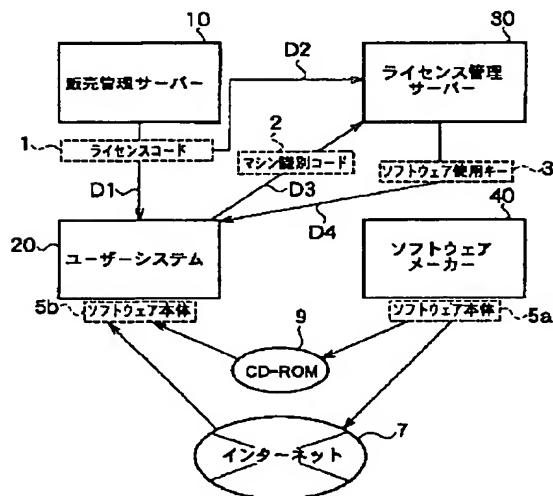
【0055】即ち、本発明に係るソフトウェア管理方法、ソフトウェア管理装置およびシステムは、使用許諾時に付与されたライセンスコード自体ではなく、ライセ

ンスコードおよびマシン識別コードから生成した、各ソフトウェアの各マシン毎固有のソフトウェア使用コードによりソフトウェア使用のチェックを行う機能を提供する。このため、ユーザーの煩雑な操作を伴わず、コンピュータマシン単位で不正コピーを容易に防止することが可能になるという効果が得られる。

【0056】さらに、ライセンスコードとソフトウェア使用キーとを分けたことにより、ライセンス管理サーバーを独立して設けることができ、電子商取引上の多様な販売形態に対応可能な汎用的なソフトウェアのライセンス管理を実現することが可能となる。

【0057】このように、本発明を用いれば、簡易かつ柔軟なソフトウェアのライセンス管理が実現され、ソフトウェア供給者およびソフトウェア使用ユーザーの双方の利便性が著しく向上する。

【図1】



## 【図面の簡単な説明】

【図1】本発明の実施形態に係るソフトウェア管理装置およびシステムのシステム構成を示すブロック図である。

【図2】本発明の実施形態に係るソフトウェア管理方法の処理手順を示すフローチャートである。

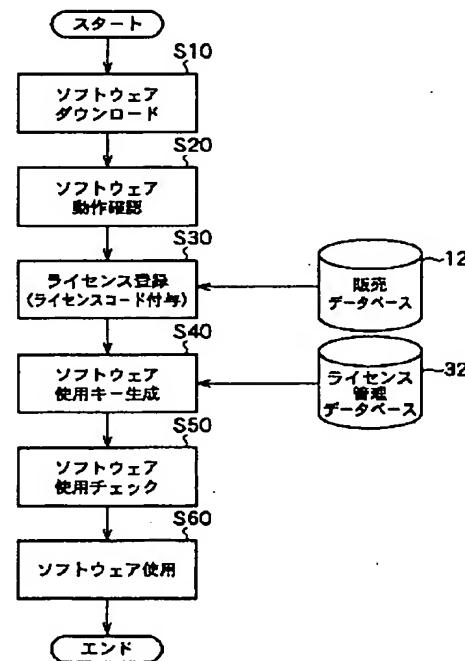
【図3】動作確認用の仮のソフトウェア使用キーの生成処理を説明する図である。

10 【図4】ライセンス登録後のソフトウェア使用キーの生成処理を説明する図である。

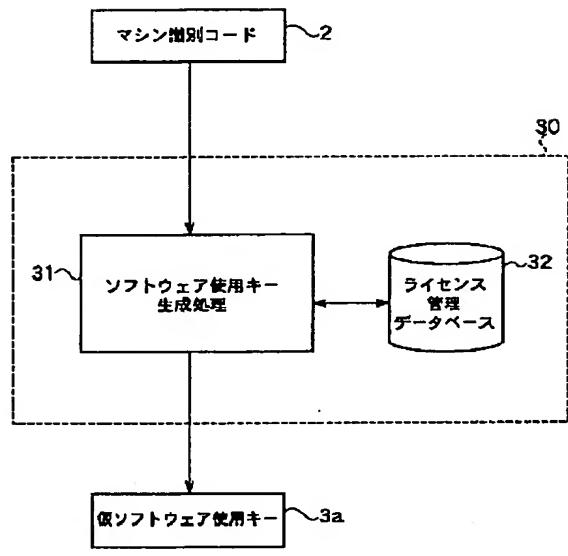
## 【符号の説明】

- D1 ライセンスコードデータ
- D2 ライセンスコードデータ
- D3 マシン識別コードデータ
- D4 ソフトウェア使用キーデータ

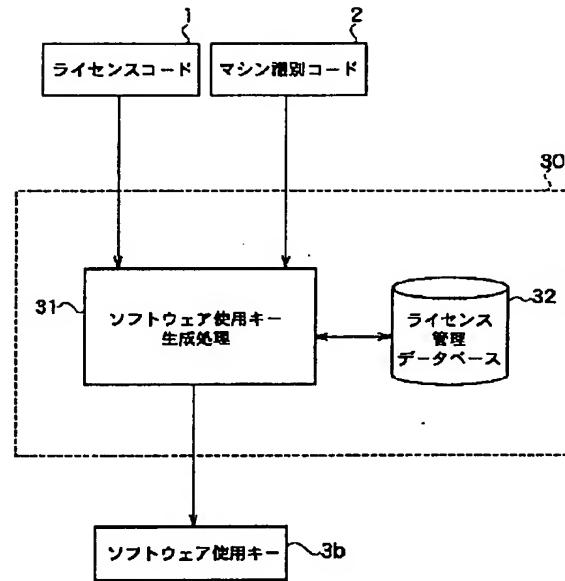
【図2】



【図3】



【図4】



# PATENT ABSTRACTS OF JAPAN

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(71)Applicant : TOYAMA HIROMICHI

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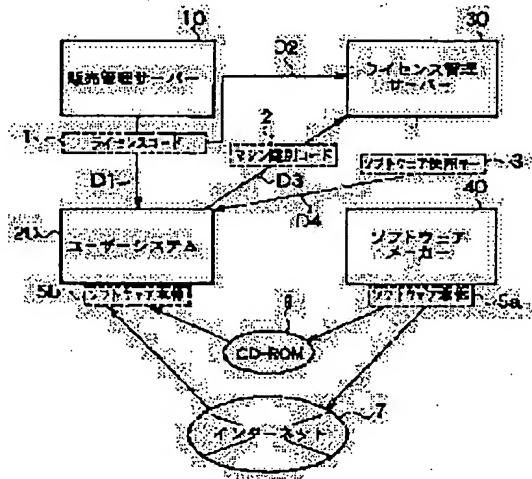
(72)Inventor : TOYAMA HIROMICHI

## (54) METHOD, DEVICE AND SYSTEM FOR MANAGING SOFTWARE

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To prevent with the simple operation of a user the unauthorized use of a software.

**SOLUTION:** This software managing method is provided with a step for generating a second key 3 for identifying the peculiar use of a software on a computer machine on the basis of a first key 1 applied, corresponding to a user permission of the software and an identification code 2 characteristic of each computer machine for operating that software at least and a step for discriminating whether or not the software can be used based only on the second key 3 at the time of using the software. A license code 1 applied at license registration and the software use key 3 deciding whether or not each software can be used within the range of the license thereof are independently managed/ operated.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

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[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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CLAIMS

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## [Claim]

[Claim 1] The 1st key which is the software-management technique of managing use of software through a network, and is given at least corresponding to use consent of software. The step which generates the 2nd key which discriminates the peculiar use on the aforementioned computer machine of the aforementioned software based on the identification code peculiar to each computer machine to which this software works. The software-management technique characterized by including the step which judges the propriety of use of the aforementioned software only based on the 2nd aforementioned key in the case of use of the aforementioned software.

[Claim 2] The step which is the software-management technique of managing use of software through a network, and gives the 1st key corresponding to use consent of software. The step which generates the 2nd key which discriminates the use with the aforementioned software peculiar when the 1st aforementioned key exists on each computer machine by which the aforementioned software works. The software-management technique characterized by including the step which judges the propriety of use of the aforementioned software only based on the 2nd aforementioned key in the case of use of the aforementioned software.

[Claim 3] The generation step of the 2nd aforementioned key is the software-management technique given in the claim 1 characterized by generating the 2nd aforementioned key only based on the aforementioned identification code when the aforementioned software is used first.

[Claim 4] 1st means to judge the existence of a reception of the 1st key given corresponding to use consent of software. Only when a reception of the 1st aforementioned key is judged by the 1st aforementioned means Software-management equipment characterized by providing 2nd means to generate the 2nd key which discriminates the peculiar use on the aforementioned computer machine of the aforementioned software, based on the identification code peculiar to each computer machine to which the aforementioned software works.

[Claim 5] With the license issue server which performs use consent of software through a network It is a software managerial system possessing the use management server which manages use of this software, and the user system which works this software. The aforementioned license issue server possesses the 1st-key generation section which gives the 1st key corresponding to use consent of software. the aforementioned use management server It is based on the 1st aforementioned key and the identification code peculiar to each computer machine to which this software works at least. The 2nd-key generation section which generates the 2nd key which discriminates the peculiar use on the aforementioned computer machine of the aforementioned software is provided. the aforementioned user system The software managerial system characterized by providing the use judging section which judges the propriety of use of the aforementioned software only based on the 2nd aforementioned key in the case of use of the aforementioned software.

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[Translation done.]

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## DETAILED DESCRIPTION

## [Detailed description]

[0001]

[The technical field to which invention belongs] About the software-management technique, software-management equipment, and a software managerial system, especially this invention prevents an unauthorized use of software by simple operation of a user in the electronic commerce on the network which sets software as the transaction object, and relates to the technique for realizing a flexible and efficient license management of software.

[0002]

[Prior art] The general procedure of minding networks, such as internet, and selling and managing software by electronic commerce is explained.

[0003] A user receives a free distribution of the concerned software by downloading the software for which it asks through a network. The code (a license code is called hereafter) which shows the licensing for permitting use of the concerned software is notified from a dealer etc. to a user after the payment of a value. In case a user uses the concerned software, the inputted license code is checked and it is judged whether the concerned use is the just use based on a license.

[0004] On the other hand, software makes it a property to be able to reproduce very easily. For this reason, after one software which obtained the license is unjustly copied to a reality, it is used improperly in many cases without notice by two or more computer machines.

[0005] It is asked for managing the use on which computer machine of the software in [ every ] is permitted in order to prevent the illegal copy of this software. That is, in order to prevent two or more use which receives the license to one software, the use in every computer machine of each software must be managed by identification code peculiar to a machine etc., respectively.

[0006] As the technique of the conventional unauthorized use check, there was a formula which uses a license code for the 1st. A user is made to input a license code in this 1st formula at the time of use of software. It carries out a use check, using this license code as a key.

[0007] However, by this 1st technique, if only it knows a single license code, even when there is only a license to one software, by two or more computer machines, other users overlap and can use the concerned software easily. Therefore, an unauthorized use was not able to be prevented enough. In addition, operation of a user will become complicated if a key is complicated highly.

[0008] Moreover, as 2nd technique, there was a formula using identification code peculiar to a computer machine. In this 2nd formula, when a user downloads software, the identification code of the machine downloaded in this software is embedded. The identification code of the machine by which the identification code and the concerned software in software are working in the case of software use is checked automatically. Therefore, the unauthorized use of those other than the permitted machine can be prevented, without inputting a key, in case a user is use.

[0009] However, the identification code of the computer machine of the license which exists at the time of a download, and a download place will be tied up with this 2nd technique fixed. For this reason, upgrade, correction, etc. of software cannot be processed as change in the same license. Moreover, authentication of the software downloaded before license registration of operation cannot be performed, either. Also in these cases, the re run of the registration procedure of the same license as the time of new purchase is needed, and complicated operation is forced upon a user. On the other hand, the license manager side also needed to overlap and manage the information on the same software in the same machine, and the license management was complicated.

[0010]

[Object of the Invention] As mentioned above, since it is a use check by the selling key in the conventional technique, or single key called machine identification code, this invention is made, in order that an unauthorized use of software may solve easily the trouble where the operation by the side of a user and the employment by the side of a license manager were complicated.

[0011] And the place made into the purpose is to offer the software-management technique, the software-management equipment, and the software managerial system which enable it to prevent an unauthorized use of software by simple operation of a user.

[0012] Moreover, other purposes are to realize a license management of the general-purpose software which can correspond to the various selling gestalt on electronic commerce.

[0013]

[The means for solving a technical problem] The characteristic feature of this invention for realizing the above-mentioned technical problem is in the point of making the license code given at the time of software use consent, and the key of the use check in the case of the concerned software use becoming independent mutually. That is, it is in the point which divided the key at the time of license issue, and the key at the time of a license check.

[0014] As for the key (a software use key is called hereafter) used for the check of software use, a peculiar key is given for every software and every machine.

[0015] In order to realize such a function, invention of a claim 1 The 1st key which is the software-management technique of managing use of software through a network, and is given at least corresponding to use consent of software. The step which generates the 2nd key which discriminates the peculiar use on the aforementioned computer machine of the aforementioned software based on the identification code peculiar to each computer machine to which this software works. It is characterized by including the step which judges the propriety of use of the aforementioned software only based on the 2nd aforementioned key in the case of use of the aforementioned software.

[0016] According to the above-mentioned configuration, it is enabled to confirm whether to be the use by which the license was carried out independently to the 1st key given at the time of use consent per each computer machine. Therefore, it is enabled to fully prevent an unauthorized use of software by simple operation of a user.

[0017] Moreover, the step which invention of a claim 2 is the software-management technique of managing use of software through a network, and gives the 1st key corresponding to use consent of software. The step which generates the 2nd key which discriminates the use with the aforementioned software peculiar when the 1st aforementioned key exists on each computer machine by which the aforementioned software works. It is characterized by including the step which judges the propriety of use of the aforementioned software only based on the 2nd aforementioned key in the case of use of the aforementioned software.

[0018] According to the above-mentioned configuration, it is enabled to confirm whether to be the use by which the license was carried out independently to the 1st key given at the time of use consent per each computer machine. Therefore, it is enabled to fully prevent an unauthorized use of software by simple operation of a user.

[0019] Moreover, invention of a claim 3 performs authentication of the concerned software before software purchase of operation, when the aforementioned software is used first and the generation step of the 2nd aforementioned key generates the 2nd aforementioned key only based on the aforementioned identification code, and it becomes possible [ managing this authentication of operation ].

[0020] Moreover, 1st means to judge the existence of a reception of the 1st key to which invention of a claim 4 is given corresponding to use consent of software. Only when a reception of the 1st aforementioned key is judged by the 1st aforementioned means It is characterized by providing 2nd means to generate the 2nd key which discriminates the peculiar use on the aforementioned computer machine of the aforementioned software, based on the identification code peculiar to each computer machine to which the aforementioned software works.

[0021] According to the above-mentioned configuration, it is enabled to confirm whether to be the use by which the license was carried out independently to the 1st key given at the time of use consent per each computer machine. Therefore, it is enabled to fully prevent an unauthorized use of software by simple operation of a user.

[0022] With furthermore, the license issue server to which invention of a claim 5 performs use consent of software through a network It is a software managerial system possessing the use management server which manages use of this software, and the user system which works this software. The aforementioned license issue server possesses the 1st-key generation section which gives the 1st key corresponding to use consent of software. the aforementioned use management server It is based on the 1st aforementioned key and the identification code peculiar to each computer machine to which this software works at least. The 2nd-key generation section which generates the 2nd key which discriminates the peculiar use on the aforementioned computer machine of the aforementioned software is provided. the aforementioned user system It is characterized by providing the use judging section which judges the propriety of use of the aforementioned software only based on the 2nd aforementioned key in the case of use of the aforementioned software.

[0023] According to the above-mentioned configuration, it is enabled to prepare independently the sales management person of each software, and the manager of a license.

[0024]

[Gestalt of implementation of invention] Hereafter, the enforcement gestalt of this invention is explained in detail using a drawing.

[0025] Drawing 1 is drawing explaining the system configuration of the software-management equipment concerning this enforcement gestalt, and a system. As shown in Drawing 1, the software managerial system concerning this enforcement gestalt is constituted by the sales management server 10, the user system 20, and the license management server 30. The network connection of the sales management server 10, the user system 20, and the license management server 30 is mutually carried out through networks (not shown), such as internet.

[0026] The sales management server 10 is managed by the dealer which sells software based on the software

manufacturer's 40 etc. consignment. The sales management server 10 publishes the license code 1 to an user system 20 after checking the payment from the user as a value of the sold software.

[0027] An user system 20 acquires software mainframe 5a which was chosen by the shop on internet etc. and for which it asks from the software manufacturer 40. This software 5a may be downloaded to an user system 20 through internet 7, or may be distributed off-line with gestalt, such as CD-ROM9.

[0028] The license management server 30 is managed by a dealer or the outsourcing contractor. The license management server 30 manages whether it is used by introducing each sold software into which which user's computer machine. Specifically, the license management server 30 publishes the software use key 3 to an user system 20, when the license code 1 of object software is published.

[0029] Next, the architecture of each code which this enforcement gestalt uses, and a key is explained.

[0030] The license code 1 is a code which discriminates use consent of the sold software. The license code 1 is given at the time of after [ sale ] license registration of software, and a software purchase user is notified of it. This license code 1 is constituted including for example, a software name, a selling number, license ID, a password, etc. The license code 1 corresponds with the 1st key during the publication by the claim.

[0031] The machine identification code 2 is a code which discriminates the computer machine by which the concerned software should work peculiar after license registration. The license management server 30 is taken as the unit of a license management of this machine identification code 2 of software. The machine identification code 2 is constituted including OS (Operation System) name of the computer machine by which software works, OS number, the hard-disk number into which software was introduced.

[0032] The software use key 3 is a key which discriminates whether it is the just use based on the license by which use of the software in each user system 20 was published. A peculiar key is given for each [ it is needed in case each software is used for this software use key 3 ] computer machine of every. In each user system 20, it judges whether it is use of the domain (for example, is it the use on one permitted computer machine?) by which use consent of the use of the concerned software was carried out using this software use key 3. The software use key 3 is constituted including the identification information of a machine, software identification information, a date-and-time information, etc. The identification information of a machine may be generated through arbitrary transform processing from the machine identification code 2. Similarly, software identification information may be generated through arbitrary transform processing from the license code 1. When other, for example, use, consent [ above ] is with a time limit as a component, it may be constituted including a use consent term information. Furthermore, it may be constituted including the used mode. This used mode can be used in the case of a use judging, and it can distinguish, respectively whether the concerned use is which the mode in the authentication mode of operation, the rental use mode, the with-a-time-limit license use mode, the indefinite license mode, etc. The software use key 3 corresponds with the 2nd key during the publication by the claim.

[0033] This software use key 3 is independently used as a cancel key of a disable in the case of a use check. That is, the license code 1 is independent of mutual. For this reason, you may publish two or more software use keys 3 to one license code 1. Thereby, when accepting use by two or more computer machines in one license, it can correspond. Moreover, without a user being conscious, the software use key 3 is embedded into object software etc., and is used for a use check. Therefore, encryption and complication may be given to arbitration for unauthorized use prevention.

[0034] In addition, architecture, generation methods, etc. other than the above of the license code 1, the machine identification code 2, and the software use key 3 are arbitrary, and may be generated by the technique generally known.

[0035] Next, the procedure of the software-management technique which starts this enforcement gestalt with reference to drawing 4 from drawing 2, software-management equipment, and a software managerial system is explained.

(1) Explain below the procedure at the time of newly purchasing the software for which it asks at the time of software new purchase with reference to drawing 2.

[0036] First, a user acquires the software for which it asks by down load etc. (S10).

[0037] Next, a user performs authentication of the concerned software of operation for decision of the right or wrong of the purchase of the downloaded software (S20). Processing of this authentication of operation is attained through an authentication registration screen of operation in the case of first time activation of the concerned software etc., for example.

[0038] At the time of authentication of operation, a use check is performed using a temporary software use key. The temporary software use key issue procedure at the time of authentication of operation is shown in drawing 3. The license management server 30 receives a demand of the software use for authentication of operation from an user system 20 with the machine identification code 2 of a computer machine which transmits the concerned demand. The license management server 30 publishes temporary software use key 3a to an user system 20 based on this machine identification code 2. A use judging of the concerned software is performed by published temporary software use key 3a. For this reason, before a volition display of purchase performs license registration, even if a sale side is, it can work the concerned software only by the predetermined machine. Moreover, since the above-mentioned processing is performed only with the license management server 30, a sale side (sales management server 10) does not need to process the authentication demand of operation with many frequencies. On the other hand, a user can purchase software for the content of the software for which it asks if needed after authentication.

[0039] In addition, this temporary software use key 3a is generated by the license management server 30 including the expiration date information which shows till when the concerned software can use it. For this reason, in an user system side, it is difficult to detect the expiration date information embedded into software use key 3a, and changing a term information unjustly and using the concerned software indefinitely is prevented. By inhibiting an alteration of this term information, it also becomes possible to form the above-mentioned license use mode etc. as mode of software use.

[0040] Next, if the user who hardened the purchase volition by authentication of operation pays [ software ] in, the license code 1 corresponding to sales data, such as a purchase user name, the number of purchase books, etc. of the concerned software, will be given after that, and it will be notified to an user system 20 from a selling server etc. (D1 in drawing 1). The sales management server 10 stores this license registration information in the selling database 12 with the corresponding license code 1. This license code 1 is stored also in the license management database 32 which the license management server 30 manages simultaneously (D2 in drawing 1).

[0041] Next, the user to whom the license code 1 was given performs license registration to the license management server 30 (S30). Specifically, online connection of between an user system 20 and the license management servers 30 is made first. The license management server's 30 network address embedded at the general purpose module which accompanies the downloaded software may be used for this connection. A user inputs the license code 1 through the initial screen of object software etc. By the input of this license code 1, the license code 1 and the machine identification code 2 are transmitted to the license management server 30 (D3 in drawing 1). This machine identification code 2 is acquirable by reading the identification information peculiar to a computer machine by which the concerned license registration was started using the interruption instruction generally known, for example.

[0042] The license management server 30 generates the software use key 3 after this license registration (S40). In addition, processing of this software use key generation may be immediately performed after license registration, and may be performed in the case of use of the beginning of the concerned software.

[0043] With reference to drawing 4, the software use key generation procedure after license registration is explained in detail. The license management server 30 receives the machine identification code 2 of a computer machine from an user system 20 (D3 in drawing 1). The license management server 30 searches the machine identification code 2 which received, and the license code 1 corresponding to the software by which the use demand was carried out in the license management database 32. This license code 1 may be beforehand stored in the license management database 32, and may be acquired from the sales management server 10 at the time of software use key issue. When the corresponding license code 1 exists, the license management server 30 publishes software use key 3b about the concerned software to an user system 20 based on the machine identification code 2 (D4 in drawing 1). When the corresponding license code 1 does not exist, the license management server 30 does not generate software use key 3b. It is received by the user system 20, and in the software for a license, published software use key 3b relates with a store or the concerned software, and is stored. On the other hand, if the machine identification code 2 in each user system 20 is managed, it is sufficient for the license management server 30, and he does not need to be conscious of each software use key 3b. For this reason, when software use key 3b is changed by the user system 20 side for the purpose, such as a security maintenance, if needed, the update of the data by the side of the license management server 30 is unnecessary, and a license management becomes easy.

[0044] Next, when object software is started for a user in an user system 20, software use check processing is performed (S50). Use check processing is performed only based on the software use key 3 stored corresponding to the started software. The technique of a use judging generally-known as the concrete technique of this use check according to the architecture of the software use key 3 may be chosen.

[0045] In addition, in this use judging, the correlation check with other license codes 1 is unnecessary. For this reason, it is not necessary to make online connection at sales management server 10 and the license management server 30, and required sufficient use check can be completed by user system 20 independent one.

[0046] Moreover, this use check processing is performed as background processing accompanied by a user's input. For this reason, a user does not need to be conscious of the software use key 3 complicated highly. Moreover, the license code 1 is kept in mind and it is not necessary to carry out an input etc. at every use. Therefore, a user's operability improves sharply.

[0047] The concerned software is made usable when the activation on the concerned computer machine of the concerned software is confirmed by this use check (S60). On the other hand, in the case of this use check, an alteration of the activation by the computer machine of the outside for a license or the software use key 3 etc. can make use of the concerned software impossible as an unauthorized use, when it judges that the concerned use is invalid.

[0048] That is, since software use key 3b is generated from the machine identification code 2, when started on other computer machines, a difference of machine identification code is detected easily and it can prevent the use on other computer machines.

(2) Explain the procedure at the time of license information change in case the time of license information change, next the license registration about object software are already made below.

(a) In upgrade, explain the case of upgrade of object software to the 1st. A user acquires the new version of possession software from the software manufacturer 40 by down load etc. like the case of new purchase.

[0049] Next, license information change processing is started. The license information change request from the user system in drawing 1 20 is transmitted to the license management server 30. This license information change request includes the information which shows upgrade of the concerned software. If the license management server 30 is the machine identification code 2 by which license authorization was carried out based on this license information change request, he will generate the software use key 3 corresponding to a new version. This new software use key 3 updates the license management database 32 while it is transmitted to an user system 20.

[0050] Thus, it is good only by changing the software use key 3 with this enforcement gestalt also in upgrade. A new use key can be given under the same license independently [ the license code 1 ]. For this reason, the sales management server 10 does not need to perform processing relevant to upgrade by each user system of the same license. With this enforcement gestalt, free upgrade is also realized easily. On the other hand, a user does not need to perform re-registration processing of a license at every upgrade, either, and operability improves.

(b) Explain the case where the computer machine which works the software by which the license is carried out to the 2nd in an used machine change is changed.

[0051] First, a user starts and performs license cancellation processing on the computer machine by which the license is carried out.

[0052] An user system 20 transmits a license cancellation information to the license management server 30 after license cancellation processing execution. The license management server 30 generates an used machine change code (not shown) according to this license cancellation information, and transmits to an user system 20. In an user system 20, a user performs license registration processing on the computer machine which should newly use the concerned software. The used machine change code given at the time of this license registration processing is inputted, and the software use key 3 is updated. Thereby, the software use key 3 on a new computer machine is acquirable under the same license.

[0053] For this reason, the license management server 30 can match and manage the old and new computer machine by which the software under the same license is used. On the other hand, a user can also perform license cancellation processing by the computer machine which ends use, and can move a software use key by simple operation of only inputting the given used machine change code on a license registration screen etc.

[0054]

[Effect of the invention] As explained above, according to this invention, an effect which is indicated below is done so.

[0055] That is, the software-management technique, the software-management equipment, and the system concerning this invention offer the function which checks software use in software use code peculiar to every machine of each software generated from not the license code given at the time of use consent itself but a license code, and machine identification code. For this reason, it is not accompanied by complicated operation of a user, but the effect of enabling it to prevent an illegal copy easily per computer machine is acquired.

[0056] Furthermore, by having divided the license code and the software use key, a license management server can be formed independently and it is enabled to realize a license management of the general-purpose software which can correspond to the various selling gestalt on electronic commerce.

[0057] Thus, if this invention is used, a license management of simple and flexible software will be realized, and the convenience of the both sides of a software feeder and a software use user will improve remarkably.

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**TECHNICAL FIELD**

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[The technical field to which invention belongs] About the software-management technique, software-management equipment, and a software managerial system, especially this invention prevents an unauthorized use of software by simple operation of a user in the electronic commerce on the network which sets software as the transaction object, and relates to the technique for realizing a flexible and efficient license management of software.

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PRIOR ART

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[Prior art] The general procedure of minding networks, such as internet, and selling and managing software by electronic commerce is explained.

[0003] A user receives a free distribution of the concerned software by downloading the software for which it asks through a network. The code (a license code is called hereafter) which shows the licensing for permitting use of the concerned software is notified from a dealer etc. to a user after the payment of a value. In case a user uses the concerned software, the inputted license code is checked and it is judged whether the concerned use is the just use based on a license.

[0004] On the other hand, software makes it a property to be able to reproduce very easily. For this reason, after one software which obtained the license is unjustly copied to a reality, it is used improperly in many cases without notice by two or more computer machines.

[0005] It is asked for managing the use on which computer machine of the software in [ every ] is permitted in order to prevent the illegal copy of this software. That is, in order to prevent two or more use which receives the license to one software, the use in every computer machine of each software must be managed by identification code peculiar to a machine etc., respectively.

[0006] As the technique of the conventional unauthorized use check, there was a formula which uses a license code for the 1st. A user is made to input a license code in this 1st formula at the time of use of software. It carries out a use check, using this license code as a key.

[0007] However, by this 1st technique, if only it knows a single license code, even when there is only a license to one software, by two or more computer machines, other users overlap and can use the concerned software easily. Therefore, an unauthorized use was not able to be prevented enough. In addition, operation of a user will become complicated if a key is complicated highly.

[0008] Moreover, as 2nd technique, there was a formula using identification code peculiar to a computer machine. In this 2nd formula, when a user downloads software, the identification code of the machine downloaded in this software is embedded. The identification code of the machine by which the identification code and the concerned software in software are working in the case of software use is checked automatically. Therefore, the unauthorized use of those other than the permitted machine can be prevented, without inputting a key, in case a user is use.

[0009] However, the identification code of the computer machine of the license which exists at the time of a down load, and a down-load place will be tied up with this 2nd technique fixed. For this reason, upgrade, correction, etc. of software cannot be processed as change in the same license. Moreover, authentication of the software downloaded before license registration of operation cannot be performed, either. Also in these cases, the re run of the registration procedure of the same license as the time of new purchase is needed, and complicated operation is forced upon a user. On the other hand, the license manager side also needed to overlap and manage the information on the same software in the same machine, and the license management was complicated.

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**EFFECT OF THE INVENTION**

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[Effect of the invention] As explained above, according to this invention, an effect which is indicated below is done so.

[0055] That is, the software-management technique, the software-management equipment, and the system concerning this invention offer the function which checks software use in software use code peculiar to every machine of each software generated from not the license code given at the time of use consent itself but a license code, and machine identification code. For this reason, it is not accompanied by complicated operation of a user, but the effect of enabling it to prevent an illegal copy easily per computer machine is acquired.

[0056] Furthermore, by having divided the license code and the software use key, a license management server can be formed independently and it is enabled to realize a license management of the general-purpose software which can correspond to the various selling gestalt on electronic commerce.

[0057] Thus, if this invention is used, a license management of simple and flexible software will be realized, and the convenience of the both sides of a software feeder and a software use user will improve remarkably.

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**TECHNICAL PROBLEM**

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[Object of the Invention] As mentioned above, since it is a use check by the selling key in the conventional technique, or single key called machine identification code, this invention is made, in order that an unauthorized use of software may solve easily the trouble where the operation by the side of a user and the employment by the side of a license manager were complicated.

[0011] And the place made into the purpose is to offer the software-management technique, the software-management equipment, and the software managerial system which enable it to prevent an unauthorized use of software by simple operation of a user.

[0012] Moreover, other purposes are to realize a license management of the general-purpose software which can correspond to the various selling gestalt on electronic commerce.

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MEANS

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[The means for solving a technical problem] The characteristic feature of this invention for realizing the above-mentioned technical problem is in the point of making the license code given at the time of software use consent, and the key of the use check in the case of the concerned software use becoming independent mutually. That is, it is in the point which divided the key at the time of license issue, and the key at the time of a license check.

[0014] As for the key (a software use key is called hereafter) used for the check of software use, a peculiar key is given for every software and every machine.

[0015] In order to realize such a function, invention of a claim 1 The 1st key which is the software-management technique of managing use of software through a network, and is given at least corresponding to use consent of software. The step which generates the 2nd key which discriminates the peculiar use on the aforementioned computer machine of the aforementioned software based on the identification code peculiar to each computer machine to which this software works. It is characterized by including the step which judges the propriety of use of the aforementioned software only based on the 2nd aforementioned key in the case of use of the aforementioned software.

[0016] According to the above-mentioned configuration, it is enabled to confirm whether to be the use by which the license was carried out independently to the 1st key given at the time of use consent per each computer machine. Therefore, it is enabled to fully prevent an unauthorized use of software by simple operation of a user.

[0017] Moreover, the step which invention of a claim 2 is the software-management technique of managing use of software through a network, and gives the 1st key corresponding to use consent of software. The step which generates the 2nd key which discriminates the use with the aforementioned software peculiar when the 1st aforementioned key exists on each computer machine by which the aforementioned software works. It is characterized by including the step which judges the propriety of use of the aforementioned software only based on the 2nd aforementioned key in the case of use of the aforementioned software.

[0018] According to the above-mentioned configuration, it is enabled to confirm whether to be the use by which the license was carried out independently to the 1st key given at the time of use consent per each computer machine. Therefore, it is enabled to fully prevent an unauthorized use of software by simple operation of a user.

[0019] Moreover, invention of a claim 3 performs authentication of the concerned software before software purchase of operation, when the aforementioned software is used first and the generation step of the 2nd aforementioned key generates the 2nd aforementioned key only based on the aforementioned identification code, and it becomes possible [ managing this authentication of operation ].

[0020] Moreover, 1st means to judge the existence of a reception of the 1st key to which invention of a claim 4 is given corresponding to use consent of software. Only when a reception of the 1st aforementioned key is judged by the 1st aforementioned means It is characterized by providing 2nd means to generate the 2nd key which discriminates the peculiar use on the aforementioned computer machine of the aforementioned software, based on the identification code peculiar to each computer machine to which the aforementioned software works.

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[0022] With furthermore, the license issue server to which invention of a claim 5 performs use consent of software through a network It is a software managerial system possessing the use management server which manages use of this software, and the user system which works this software. The aforementioned license issue server possesses the 1st-key generation section which gives the 1st key corresponding to use consent of software. the aforementioned use management server It is based on the 1st aforementioned key and the identification code peculiar to each computer machine to which this software works at least. The 2nd-key generation section which generates the 2nd key which discriminates the peculiar use on the aforementioned computer machine of the aforementioned software is provided. the aforementioned user system It is characterized by providing the use judging section which judges the propriety of use of the aforementioned software only based on the 2nd aforementioned key in the case of use of the aforementioned software.

[0023] According to the above-mentioned configuration, it is enabled to prepare independently the sales

management person of each software, and the manager of a license.

[0024]

[Gestalt of implementation of invention] Hereafter, the enforcement gestalt of this invention is explained in detail using a drawing.

[0025] Drawing 1 is drawing explaining the system configuration of the software-management equipment concerning this enforcement gestalt, and a system. As shown in drawing 1, the software managerial system concerning this enforcement gestalt is constituted by the sales management server 10, the user system 20, and the license management server 30. The network connection of the sales management server 10, the user system 20, and the license management server 30 is mutually carried out through networks (not shown), such as internet.

[0026] The sales management server 10 is managed by the dealer which sells software based on the software manufacturer's 40 etc. consignment. The sales management server 10 publishes the license code 1 to an user system 20 after checking the payment from the user as a value of the sold software.

[0027] An user system 20 acquires software mainframe 5a which was chosen by the shop on internet etc. and for which it asks from the software manufacturer 40. This software 5a may be downloaded to an user system 20 through internet 7, or may be distributed off-line with gestalt, such as CD-ROM9.

[0028] The license management server 30 is managed by a dealer or the outsourcing contractor. The license management server 30 manages whether it is used by introducing each sold software into which which user's computer machine. Specifically, the license management server 30 publishes the software use key 3 to an user system 20, when the license code 1 of object software is published.

[0029] Next, the architecture of each code which this enforcement gestalt uses, and a key is explained.

[0030] The license code 1 is a code which discriminates use consent of the sold software. The license code 1 is given at the time of after [ sale ] license registration of software, and a software purchase user is notified of it. This license code 1 is constituted including for example, a software name, a selling number, license ID, a password, etc. The license code 1 corresponds with the 1st key during the publication by the claim.

[0031] The machine identification code 2 is a code which discriminates the computer machine by which the concerned software should work peculiar after license registration. The license management server 30 is taken as the unit of a license management of this machine identification code 2 of software. The machine identification code 2 is constituted including OS (Operation System) name of the computer machine by which software works, OS number, the hard-disk number into which software was introduced.

[0032] The software use key 3 is a key which discriminates whether it is the just use based on the license by which use of the software in each user system 20 was published. A peculiar key is given for each [ it is needed in case each software is used for this software use key 3 ] computer machine of every. In each user system 20, it judges whether it is use of the domain (for example, is it the use on one permitted computer machine?) by which use consent of the use of the concerned software was carried out using this software use key 3. The software use key 3 is constituted including the identification information of a machine, software identification information, a date-and-time information, etc. The identification information of a machine may be generated through arbitrary transform processing from the machine identification code 2. Similarly, software identification information may be generated through arbitrary transform processing from the license code 1. When other, for example, use, consent [ above ] is with a time limit as a component, it may be constituted including a use consent term information. Furthermore, it may be constituted including the used mode. This used mode can be used in the case of a use judging, and it can distinguish, respectively whether the concerned use is which the mode in the authentication mode of operation, the rental use mode, the with-a-time-limit license use mode, the indefinite license mode, etc. The software use key 3 corresponds with the 2nd key during the publication by the claim.

[0033] This software use key 3 is independently used as a cancel key of a disable in the case of a use check. That is, the license code 1 is independent of mutual. For this reason, you may publish two or more software use keys 3 to one license code 1. Thereby, when accepting use by two or more computer machines in one license, it can correspond. Moreover, without a user being conscious, the software use key 3 is embedded into object software etc., and is used for a use check. Therefore, encryption and complication may be given to arbitration for unauthorized use prevention.

[0034] In addition, architecture, generation methods, etc. other than the above of the license code 1, the machine identification code 2, and the software use key 3 are arbitrary, and may be generated by the technique generally known.

[0035] Next, the procedure of the software-management technique which starts this enforcement gestalt with reference to drawing 4 from drawing 2, software-management equipment, and a software managerial system is explained.

(1) Explain below the procedure at the time of newly purchasing the software for which it asks at the time of software new purchase with reference to drawing 2.

[0036] First, a user acquires the software for which it asks by down load etc. (S10).

[0037] Next, a user performs authentication of the concerned software of operation for decision of the right or wrong of the purchase of the downloaded software (S20). Processing of this authentication of operation is attained through an authentication registration screen of operation in the case of first time activation of the concerned software etc., for example.

[0038] At the time of authentication of operation, a use check is performed using a temporary software use

key. The temporary software use key issue procedure at the time of authentication of operation is shown in drawing 3. The license management server 30 receives a demand of the software use for authentication of operation from an user system 20 with the machine identification code 2 of a computer machine which transmits the concerned demand. The license management server 30 publishes temporary software use key 3a to an user system 20 based on this machine identification code 2. A use judging of the concerned software is performed by published temporary software use key 3a. For this reason, before a volition display of purchase performs license registration, even if a sale side is, it can work the concerned software only by the predetermined machine. Moreover, since the above-mentioned processing is performed only with the license management server 30, a sale side (sales management server 10) does not need to process the authentication demand of operation with many frequencies. On the other hand, a user can purchase software for the content of the software for which it asks if needed after authentication.

[0039] In addition, this temporary software use key 3a is generated by the license management server 30 including the expiration date information which shows till when the concerned software can use it. For this reason, in an user system side, it is difficult to detect the expiration date information embedded into software use key 3a, and changing a term information unjustly and using the concerned software indefinitely is prevented. By inhibiting an alteration of this term information, it also becomes possible to form the above-mentioned license use mode etc. as mode of software use.

[0040] Next, if the user who hardened the purchase volition by authentication of operation pays [ software ] in, the license code 1 corresponding to sales data, such as a purchase user name, the number of purchase books, etc. of the concerned software, will be given after that, and it will be notified to an user system 20 from a selling server etc. (D1 in drawing 1). The sales management server 10 stores this license registration information in the selling database 12 with the corresponding license code 1. This license code 1 is stored also in the license management database 32 which the license management server 30 manages simultaneously (D2 in drawing 1).

[0041] Next, the user to whom the license code 1 was given performs license registration to the license management server 30 (S30). Specifically, online connection of between an user system 20 and the license management servers 30 is made first. The license management server's 30 network address embedded at the general purpose module which accompanies the downloaded software may be used for this connection. A user inputs the license code 1 through the initial screen of object software etc. By the input of this license code 1, the license code 1 and the machine identification code 2 are transmitted to the license management server 30 (D3 in drawing 1). This machine identification code 2 is acquirable by reading the identification information peculiar to a computer machine by which the concerned license registration was started using the interruption instruction generally known, for example.

[0042] The license management server 30 generates the software use key 3 after this license registration (S40). In addition, processing of this software use key generation may be immediately performed after license registration, and may be performed in the case of use of the beginning of the concerned software.

[0043] With reference to drawing 4, the software use key generation procedure after license registration is explained in detail. The license management server 30 receives the machine identification code 2 of a computer machine from an user system 20 (D3 in drawing 1). The license management server 30 searches the machine identification code 2 which received, and the license code 1 corresponding to the software by which the use demand was carried out in the license management database 32. This license code 1 may be beforehand stored in the license management database 32, and may be acquired from the sales management server 10 at the time of software use key issue. When the corresponding license code 1 exists, the license management server 30 publishes software use key 3b about the concerned software to an user system 20 based on the machine identification code 2 (D4 in drawing 1). When the corresponding license code 1 does not exist, the license management server 30 does not generate software use key 3b. It is received by the user system 20, and in the software for a license, published software use key 3b relates with a store or the concerned software, and is stored. On the other hand, if the machine identification code 2 in each user system 20 is managed, it is sufficient for the license management server 30, and he does not need to be conscious of each software use key 3b. For this reason, when software use key 3b is changed by the user system 20 side for the purpose, such as a security maintenance, if needed, the update of the data by the side of the license management server 30 is unnecessary, and a license management becomes easy.

[0044] Next, when object software is started for a user in an user system 20, software use check processing is performed (S50). Use check processing is performed only based on the software use key 3 stored corresponding to the started software. The technique of a use judging generally known as the concrete technique of this use check according to the architecture of the software use key 3 may be chosen.

[0045] In addition, in this use judging, the correlation check with other license codes 1 is unnecessary. For this reason, it is not necessary to make online connection at sales management server 10 and the license management server 30, and required sufficient use check can be completed by user system 20 independent one.

[0046] Moreover, this use check processing is performed as background processing accompanied by a user's input. For this reason, a user does not need to be conscious of the software use key 3 complicated highly. Moreover, the license code 1 is kept in mind and it is not necessary to carry out an input etc. at every use. Therefore, a user's operability improves sharply.

[0047] The concerned software is made usable when the activation on the concerned computer machine of the

concerned software is confirmed by this use check (S60). On the other hand, in the case of this use check, an alteration of the activation by the computer machine of the outside for a license or the software use key 3 etc. can make use of the concerned software impossible as an unauthorized use, when it judges that the concerned use is invalid.

[0048] That is, since software use key 3b is generated from the machine identification code 2, when started on other computer machines, a difference of machine identification code is detected easily and it can prevent the use on other computer machines.

(2) Explain the procedure at the time of license information change in case the time of license information change, next the license registration about object software are already made below.

(a) In upgrade, explain the case of upgrade of object software to the 1st. A user acquires the new version of possession software from the software manufacturer 40 by down load etc. like the case of new purchase.

[0049] Next, license information change processing is started. The license information change request from the user system in drawing 1 20 is transmitted to the license management server 30. This license information change request includes the information which shows upgrade of the concerned software. If the license management server 30 is the machine identification code 2 by which license authorization was carried out based on this license information change request, he will generate the software use key 3 corresponding to a new version. This new software use key 3 updates the license management database 32 while it is transmitted to an user system 20.

[0050] Thus, it is good only by changing the software use key 3 with this enforcement gestalt also in upgrade. A new use key can be given under the same license independently [ the license code 1 ]. For this reason, the sales management server 10 does not need to perform processing relevant to upgrade by each user system of the same license. With this enforcement gestalt, free upgrade is also realized easily. On the other hand, a user does not need to perform re-registration processing of a license at every upgrade, either, and operability improves.

(b) Explain the case where the computer machine which works the software by which the license is carried out to the 2nd in an used machine change is changed.

[0051] First, a user starts and performs license cancellation processing on the computer machine by which the license is carried out.

[0052] An user system 20 transmits a license cancellation information to the license management server 30 after license cancellation processing execution. The license management server 30 generates an used machine change code (not shown) according to this license cancellation information, and transmits to an user system 20. In an user system 20, a user performs license registration processing on the computer machine which should newly use the concerned software. The used machine change code given at the time of this license registration processing is inputted, and the software use key 3 is updated. Thereby, the software use key 3 on a new computer machine is acquirable under the same license.

[0053] For this reason, the license management server 30 can match and manage the old and new computer machine by which the software under the same license is used. On the other hand, a user can also perform license cancellation processing by the computer machine which ends use, and can move a software use key by simple operation of only inputting the given used machine change code on a license registration screen etc.

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[Translation done.]

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2. \*\*\*\* shows the word which can not be translated.
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**DESCRIPTION OF DRAWINGS**

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[An easy explanation of a drawing]

[ Drawing 1 ] It is the block diagram showing the system configuration of the software-management equipment concerning the enforcement gestalt of this invention, and a system.

[ Drawing 2 ] It is the flow chart which shows the procedure of the software-management technique concerning the enforcement gestalt of this invention.

[ Drawing 3 ] It is drawing explaining generation processing of the temporary software use key for authentication of operation.

[ Drawing 4 ] It is drawing explaining generation processing of the software use key after license registration.

[An explanation of a sign]

D1 License code data

D2 License code data

D3 Machine identification code data

D4 Software use key data

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[Translation done.]

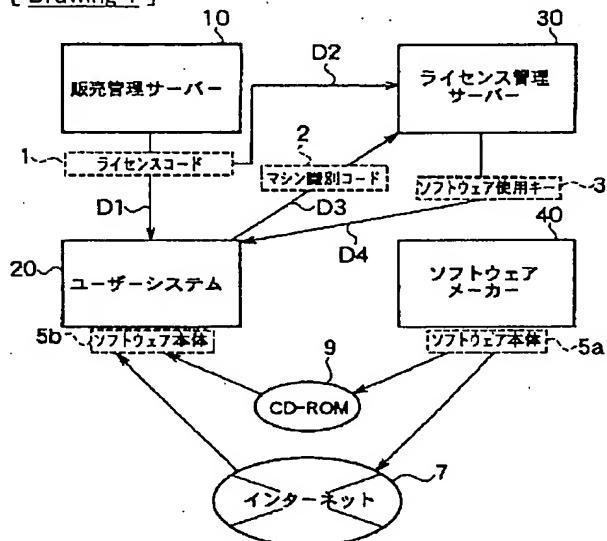
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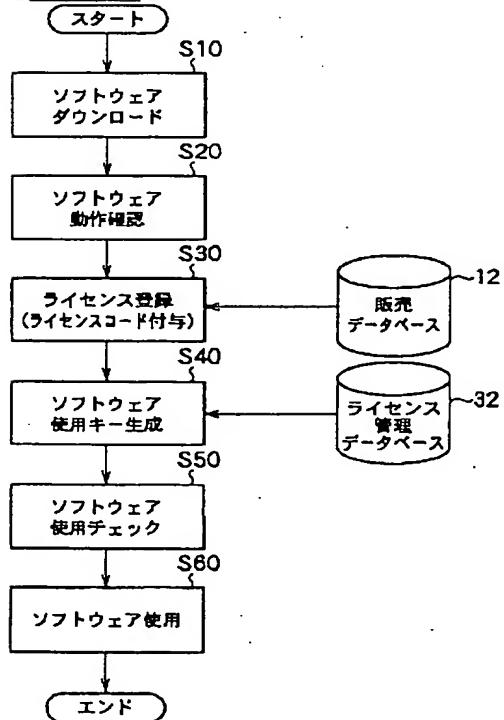
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## DRAWINGS

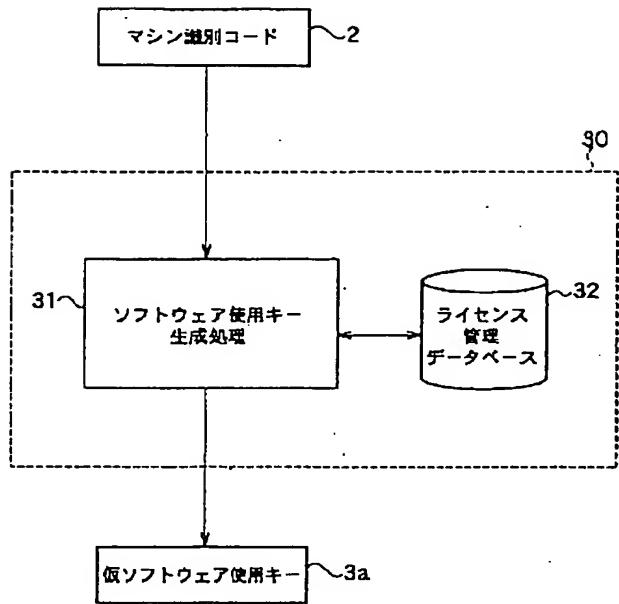
## [ Drawing 1 ]



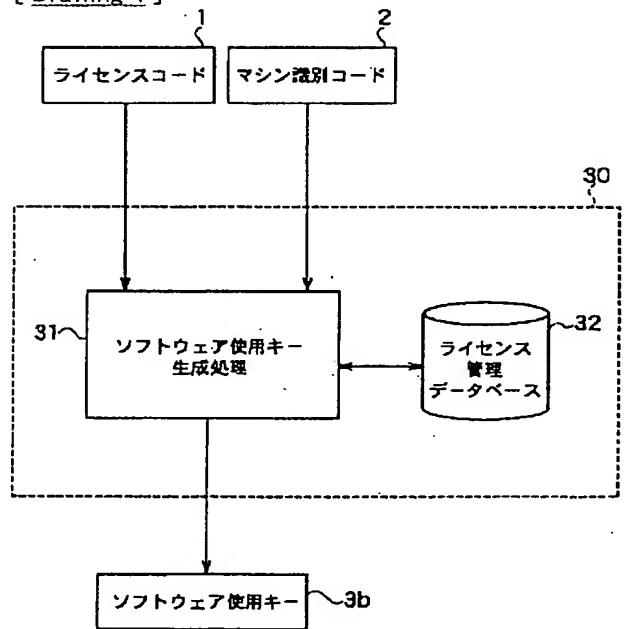
## [ Drawing 2 ]



## [ Drawing 3 ]



[ Drawing 4 ]



[Translation done.]